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ABSTRACT

This study investigated the relationship between a multiple team structure and student achievement in a high minority (predominantly African American), low socioeconomic status middle school over 3 years. Part of a larger 5-year investigation of team structures in high performing restructured middle schools, the study observed the components and interactions of the executive team, leadership team, grade level team, cross-content teams, and interdisciplinary and study teams, noting their influence on student learning outcomes. The analysis took into account the extent of administrative and district support. Data sources included questionnaires, stories teachers wrote about pictures, team meeting observations, classroom observations, interviews, school documents, and state report card data. Data sources provided information related to district and administrative support, multiple teams, teacher integration of multiple team tasks and team learning, classroom practice, and student performance. Results indicated that the systematic alignment of district and administrative directives coupled with multiple teams at the school site and with teacher integration and learning in study teams resulted in changed classroom practices and increased student performance. (Contains 18 references.) (SM)

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Multiple Team Structures and Student Learning In a High Risk Middle School

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Purpose

The goal of the study was to investigate the relationship between a multiple team structure and student achievement in a high minority, low SES middle school over the past three years. Part of a larger 5 year investigation of team structures in high performing restructured middle schools (Trimble, 1995; Trimble & Miller, 1996; Trimble & Peterson, 1998, 1999), the study observed the components and interactions of the executive team, leadership team, grade level teams, cross-content teams, interdisciplinary and study teams, and their influence on student learning outcomes. The extent of administrative and district support was taken into account in the analysis.

Theoretical Framework

Ilgen (1999) drew attention to the work of teams in organizational contexts and pointed out the inherent complexities of team research. He called for analysis of the numerous levels of team functioning and outcomes through multiple methods. This study employs the multi-method approach to take into account the functioning of multiple teams within schools. For example, in this study the components of context, inputs, process, and outputs are framed within general systems theory (Bertalanffy, 1968; Hackman,1987). According to the systems paradigm, the school represents the focal system, with teams as subsystems. The interactions and relations among subsystems are grounded in contingency theory, the perspective that an organization is comprised of sets of interacting subsystems, with interdependent relations among the subsystems and the environment (Morgan, 1986). Environmental influences include district and administrative support. Relationships among the four types of teams in this study influence teacher integration of learning experiences; teacher integration in turn affects classroom practices; classroom practices then directly affect student learning outcomes with feedback loops to administrative support and team functioning. These system components are graphically depicted in Figure 1: Model for Organizing Subsystems.

Methods

Participants. The school site contains grades 6-8, with a total enrollment of approximately 893 students, 67% Black, 32.7% White, 0.2% Hispanic, 0.1% Asian, 0.0% American Indian, and 0.0% Multi-racial. Sixty-five (65.5%) of the students are eligible to receive free or reduced lunch. The Georgia Council for School Performance grouped the school in Cluster 7, with Cluster 8 being the lowest SES grouping of schools in Georgia and Cluster 1 having the highest SES households.

There are 59 certified personnel with an average teachers' experience of 12 years, and administrators' average experience of 22 years. Faculty and administrators participated or rotated within five types of teams: (1) an executive team consisting of the principal, three assistant principals, a counselor, and the paraprofessional/clerical representative, a school leadership team; (2) a school leadership team consisting of representatives of other teams; (3) grade level teams consisting of representatives of the 6th, 7th, and 8th grades; (4) cross-grade-level subject area

teams consisting of representatives for a specific discipline from each interdisciplinary team, and (5) interdisciplinary teams at each grade. There were 3 grade level teams, 5 cross content subject area teams, 8 interdisciplinary teams, including 2 special teams of resource teachers and exploratory teachers.

An interdisciplinary team is defined as "a way of organizing the faculty so that a group of teachers share: the responsibility for planning, teaching, and evaluating curriculum and instruction in more than one academic area; the same group of students; the same schedule; the same area of the building" (Alexander & George, 1981, p. 115). The eight interdiscipinary teams also served as study teams for teachers to learn new teaching/learning strategies. Teachers rotated through participation on 1-2 year stints as leaders of interdisciplinary teams.

Interdisciplinary team meetings were held at least twice a week during the daily 50-minute common planning time. At this time, teachers planned instruction, scheduled events, guided and counseled students with special needs, and held parent conferences. All teachers also had an individual planning period. Once a month interdisciplinary teams acted as study teams; they met for instruction of new teaching techniques and practiced with a consultant on a specified topic aligned to the school goals, e. g., writing techniques. Each session was followed in two weeks by a debriefing/reflection session where teachers discussed their experiences implementing the new strategies in the classroom.

Data Sources. The seven categories of data sources were questionnaires, stories teachers wrote about pictures, team meeting observations, classroom observations, interviews, school documents, and state report card data. Data sources provided information related to the following five components of the study: District and Administrative Support, Multiple Teams, Teacher Integration, Classsroom Practice, and Student Performance (See Figure 2 Data Collection Matrix). A description of data collection and analysis for each component follows:

(A) District and Administrative Support. Notes from structured interviews with the district superintendent, the principal ,and three assistant principals were coded for similar themes. Teacher interviews also provided information. Other procedures included an analysis of district resources and perks for teachers (e.g., lunch "out), district policy and procedures (e.g., required reading for all district school personnel, board members attendance at school events, board members' day long observations in schools and positive written comments).

(B) Multiple Teams. Structured interviews with the principal and three assistant principals, and team leaders, coded for similar themes (e.g., procedures, high vocalization of "students first," high expectations, continual feedback and positive reinforcement); observations of all types of team meetings; team meeting logs and agendas; teachers' responses to the *Team Process Inventory* (Trimble, 1995), a 30-item self-report measure, targeting human factors (e.g., group process and team beliefs) and task factors (e.g., team tasks as instruction and guidance). Anchors were 6=always, 5=often, 4=occasionally, 3=seldom, 2=never and 1=NA (not applicalbe). Teachers indicated their perceived degree of teacher participation on each item. Examples of items included participating in team decision- making, discussing team goals, bringing closure to items, having parent conferences as a team, trying out innovative ways of teaching, and impacting classroom practices. Alpha reliability coefficients were .85 (group process); .85 (team beliefs),

and .74 (team tasks). Structured interviews with the administration and team leaders were coded for similar themes (e.g., procedures, high vocalization of "students first," high expectations, continual feedback and positive reinforcement).

(C) Teacher Integration of multiple team tasks and team learning. Teachers wrote stories to pictures (Murray, 1943; Pollak & Gilligan, 1982), interviews with teachers and assistant principals, classroom teaching observations
(D) Classroom Practice: observations of classrooms and students, interviews with teachers
(E) Student Performance: state required school improvement plans (e.g., Pay for Performance), the school's writing scores for 8th graders; ITBS scores and school demographics reported on the Georgia Public Education Report Card (1996-1999), School Performance Reports by the Georgia Council for School Improvement which groups (clusters) similar schools according to socio-economic status (SES) of the student body. Student performance was analyzed at two levels (a) within-school achievement trends over three years and, (b) between-school comparisons of trends and achievement

Data Analysis. The analysis of data was guided by the following questions: What were the factors that influenced the following interactions: between (a) the administration and faculty, (b) team functioning and teacher integration, (c) teacher integration and classroom practices, (d) classroom practices and student outcomes? To organize the data we used a matrix of the five components (district and administrative support, team structures, teacher integration, classroom practices, and student outcomes) by method (see Figure 2). The matrix evolved from the original multitrait-multimethod matrix developed by Campbell and Fiske (1959) and adapted for team analysis (Trimble & Peterson, 1998).

Results

Results are grouped by components in the following summaries:

(A) District and Administrative Support. The local Board of Education provided direction and support in various ways. Millage rates generated $370,000 as compared to the more common $250,000 of surrounding districts. The BOE funded an additional assistant principal to handle discipline. This practice enabled EMS to have an assistant principal assigned to each grade level, and for one of the assistant principals to handle test-taking, staff development, and curriculum alignment. The BOE also provided a security officer, funding of several exploratory classes, and granted control to the school for decisions related to staff development. The BOE requires all school personnel to read *Deciding What to Teach and Test: Developing, Aligning, and Auditing the Curriculum*, by F. W. English, and to have all classroom materials aligned to state objectives. Positive relationships existed between school and local BOE. "We have never been denied a request for anything," stated the assistant principal. The evaluations of the principal and the assistant principal in charge of curriculum are tied to the school's test scores.

(B) Team Performance

Executive Team. Administrative practices emerged from the executive team that provided

both a model of effective team work and influenced the performance of other teams (1) a daily verbalization of the school mission "for the best interests of the students," and to "Stay focused," and "Keep on target," (2) a commitment to the teaming structure, as evidenced by the adherence to the scheduled team meeting times, (3) the modeling of high expectations and teamwork by the administrative team, (4) a continual search for better ways of doing things, (5) the use of best practices and research findings in the search for solutions, (6) systematic use of student data to set yearly goals which in turn determined the staff development themes, (7) yearly specific point increases in ITBS scores are established with a matching motto, such as "9 in 99," (8) clear delineation of areas of responsibility for each team and staff person, (9) time in each executive meeting devoted to lesson plans and to instructional observations, (10) the training by the assistant principal in aligning the curriculum, (11) an attitude of "no excuses" and "we are accountable," (12) a high visibility of the administrators, "99% of the time someone is watching them," stated the principal, (13) a balance of autocratic, managerial, and participative leadership styles and a clarity of the different areas covered by each style, and (14) the incorporation of six dimensions of transformational style of leadership (visions, model, group goals, individual support, high expectations, intellectual stimulation) (Leithwood, K., Menzies, T., & Jantzi, D. (1994)

Leadership Team. Purpose is to deal with school wide issues, to coordinate calendar dates, field trips, schoolwide "Word of the Day," and "Math Problem of the Day," bus loading areas, traffic in halls and between periods, lunch concerns, and school-wide events. Instructional concerns were addressed first in every meeting observed and as reflected in the leadership minutes. Every grade representative shared concerns from that grade, as well as the sharing of news from exploratory, resource, media, and counseling areas of the school.

Grade Level and Cross Content Teams. These teams operated according to their function of handling managerial grade-level concerns and subject area instructional and curriculum alignment concerns. Each team was made up of teacher representations and met following monthly faculty meetings.

Interdisciplinary Study Teams. Survey responses, when compared to other schools, proved exceptionally high for innovative teaching (M=4.96), making time to discuss teaching in meetings (M= 5.04), input into school policy (M= 5.54), beneficial group process and team management (5.21), and positive team beliefs and relationships (M= 5.38). High team functioning occurred in six of the eight teams, with the two 8th grade teams' responses having greater deviation and lower means. All teams indicated they considered their team to be a success.

(C) Teams and Teacher Integration. The stories written by teachers to pictures overall revealed a proactive positive attitude, a willingness to take risks, and pride and ownership in the described situation. Interviews with team leaders and other teachers confirmed the clear expectations of the administration and the students being clearly aware of learning as top priority. Multiple team participation was described in terms of being functional and "not a burden." Rotation of team leaders was considered an asset. Working hard and putting in additional hours was an accepted expectation. Interdisciplinary teams were the main source of support for all interviewed teachers. In these teams functioning as study groups, the following new skills were taught to teachers by consultants and implemented in classroom to address the low test scores in writing: induction sets,

recreation, mnemonics, slotting, concept attainment, and deduction, use of specific software programs, the use of one-computer to do class writing together.

(D) Classroom Practices. Survey responses indicated high responses to innovative teaching in the classroom (M=4.96). Sixty-two percent (62%) of the faculty responded "often" and "always" to the question, "Has being on the team helped you make improved changes in your classroom?" with the remaining 37% composed of resource, exploratory teachers, and the eighth grade teams. Classroom observations noted that the objectives were written on the board, the board was filled with content, and teachers voiced and repeated the purpose of the day's lesson. An observed math class was led by a teacher who encouraged students to share their thinking on ways to problem-solve, to write creatively, and to focus on the question being asked. Evidence of new skills being used in the classroom occurred in individual teachers' lesson plans, study logs of study groups, and action plans of the cross-content teams.

(E) Student Outcomes. Students who consistently scored in lower 25% percentile made substantial increases in test scores. In Reading, in AY 1998-1999, there were 65 out of 298-8th graders who scored below the 25 percentile as compared to 82 students out of 298-8th graders below the 25th percentile in 1997-1998. In Math, in AY 1998-1999, there were 51 out of 298-8th graders below the 25 percentile as compared to 63 students out of 298-8th graders below the 25th percentile in 1997-1998.

Within-school trends: the GA Public Education Report Card for the target school reported achievement gains in reading comprehension from 36 in AY 1995-96, to 37 in AY 1996-97, to 45 in AY 1997-98, with district scores of 36, 37, and 34, respectively and state scores of 48, 48, and 48 respectively; and achievement gains in math from 51 in AY 1995-1996, to 50 in AY 1996-97, to 59 in AY 1997-1998, with district scores of 51, 50, and 57 respectively, and state scores of 53, 54, and 55 respectively across the same three-year period. Reading vocabulary scores improved 16 percentile pts from 76 in AY 1996-1997 to 92 percentile pts in AY 1997-1998. During this same one year period, the following increases were made: Language Arts from 59 to 68 ; social studies, from 45 to 52; Science, from 41 to 49, Sources of Information, from 47 to 55, and the composite score from 48 to 59. Writing scores, the target of school goals for 1998-1999, surpassed the state mean of 208, the system mean of 215 with a school mean of 218.

Sustained improvement followed the two and three year gains reported above (see Fig. 3: Student Achievement Data). The 1998-1999 school ITBS scores were higher or the same when compared to state scores (Georgia Public Education Report card, 1998-1999). The scores are reported below in the format of subject: school percentage/state percentage with school improvement points from the previous year.

Reading Comprehension: 49/49 with an improvement of 4 points from 97-98.
Mathematics: 63/56 with an improvement of 4 pts from 97-98.
Reading Vocabulary: 92/46 with an improvement of 0 pts from 97-98.
Language Arts: 75/60 with an improvement of 7 pts from 97-98.
Social Studies: 54/54 with an improvement of 2 points from 97-98.
Science: 66/56 with an improvement of 15 pts from 97-98.
Sources of Information: 60/57 with an improvement of 5 pts from 97-98

Performance indicators reported by the Georgia Council for School Improvement for a three-year period showed a decline in the number of dropouts and an increase in student attendance at the targeted school. Between-school comparisons revealed that the target school was in the top 20% of similar schools in 11 out of 13 indicators, in the top 40% in the remaining two indicators (Georgia Council for School Improvement, 1998-1999)

The results provide compelling evidence that a systemic alignment of district and administrative directives coupled with multiple teams at the school site and with teacher integration and learning in study teams result in changed classroom practices and increased student performance.

Educational Importance

Within the research base of participatory school reform (DarlingHammond, 1996, 1998), this study contributes an understanding of multiple team structures and its relationship to increase student performance. The study highlights the importance of multiple team structures that directly and indirectly influence student outcomes and the importance of the systemic approach to integrate and coordinate all subsystems impacting student outcomes (Elmore, 1995). The study also points to the importance of teachers' ability to integrate multiple team task demands, to engage in team learning, and to use the support structures of teams to implement new behaviors. The findings provide strong evidence that multiple teams at the school site enable educators to response to the demands of a complex and changing school environment, by providing the supportive environment for administrators and teachers to learn new ways of thinking about school processes and to generate and initiate appropriate responses that result in increased student performance.

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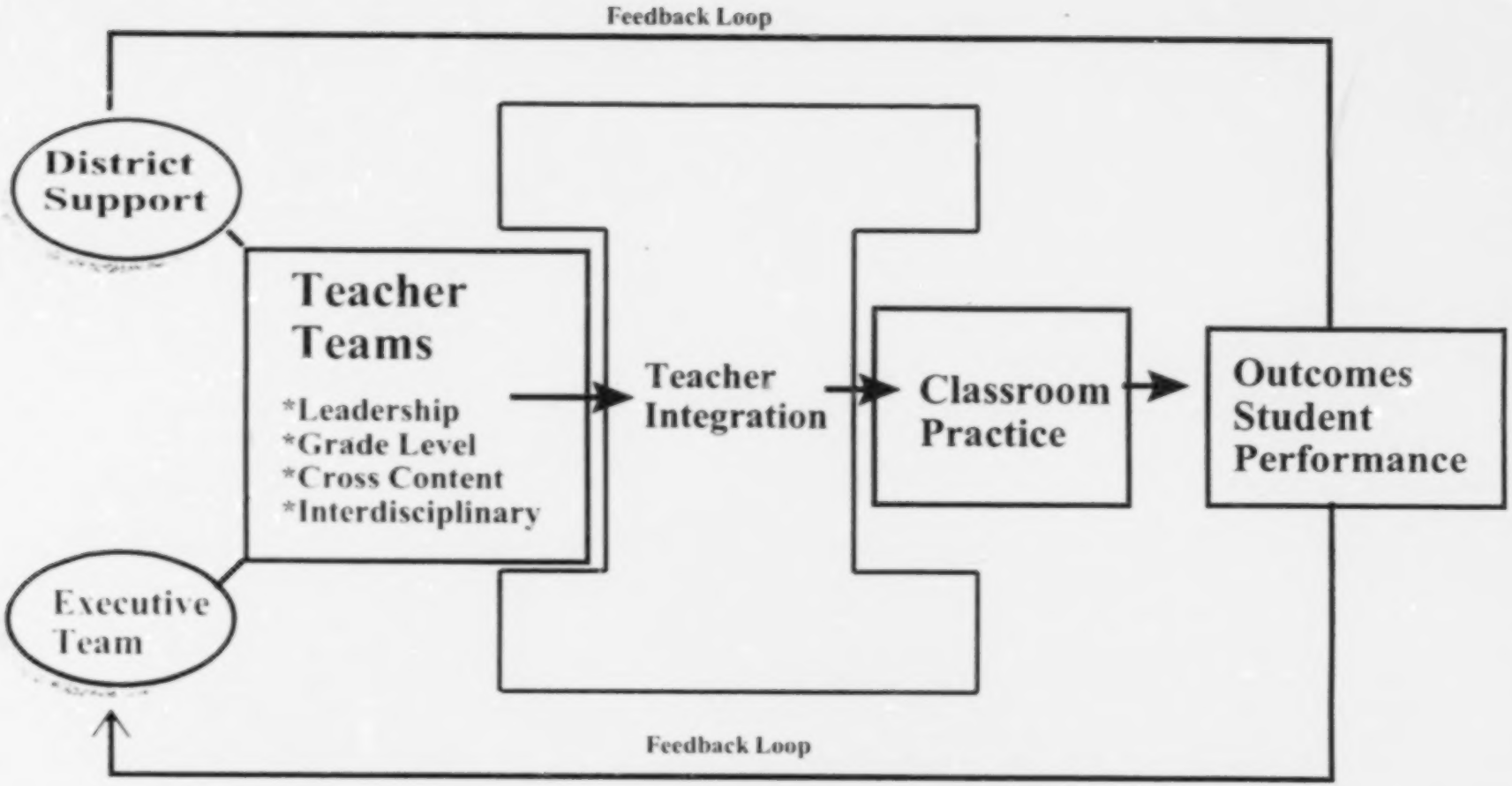

Figure 1: System Components

Figure 2: Data Collection Model

Method	District/Administrative support	Teams	Teacher Integration	Classroom Practice	Student Outcomes
Team Process Inventory		x	x		
Teachers' Stories written to Pictures		x	x	x	
Team Meeting Observations		x	x	x	
Interviews	x	x	x	x	x
School Documents	x	x	x	x	x
School Comparison Data * GA Report Card * GA Performance * GA Writing Scores	x				x

a. x = data source included in the study

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Figure 3: Student Achievement Data for Elder Middle School (1996-1999)

8th Grade ITBS Percentile Scores (Georgia Public School Report Cards)

SUBJECT	1996-1997	1997-1998	1998-1999	Increase 1996-1999
Reading Comprehension				
School	37	45	49	**12**
State	48	48	49	
Math				
School	50	59	63	**13**
State	54	55	56	
Reading Vocabulary				
School	76	92	92	**16**
State	44	45	46	
Language Arts				
School	59	68	75	**16**
State	56	58	60	
Social Studies				
School	45	52	54	**9**
State	53	53	54	
Science				
School	41	49	66	**25**
State	53	55	56	
Sources of Information				**13**
School	47	55	60	
State	55	56	57	